

Driver ASICs for Advanced Deformable Mirrors, Phase I

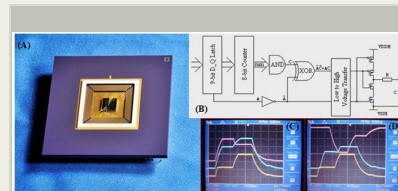
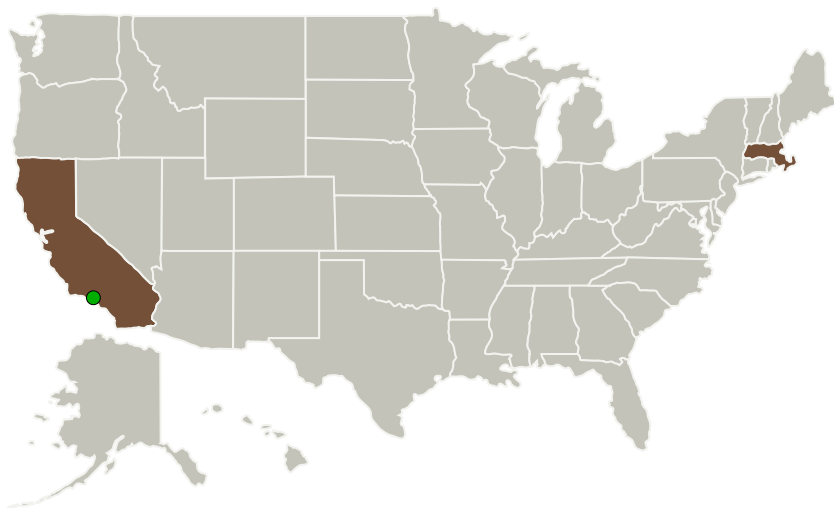
Completed Technology Project (2013 - 2013)



Project Introduction

The program leverages on our extensive expertise in developing high-performance driver ASICs for deformable mirror systems and seeks to expand the capacities of the proposed novel ASIC technology to beyond what have been possible by using traditional techniques. The overall goal of the SBIR program will be to develop a new class of Application Specified Integrated Circuit (ASIC) driver technology to be used in driver electronics of a deformable mirror (DM) system for reducing power dissipation, improving controllability, enforcing multiplexing bandwidth, and significantly reducing the form factors of the entire DM system for adaptive optics. Through the Phase I project, we aims to transform the technology readiness level from TRL 1 to TRL 2, and in Phase II, the technology readiness level for the proposed ASIC driver system will be promoted from TRL 2 to TRL 4 within a 2-year time frame.

Primary U.S. Work Locations and Key Partners



• Originally inspired through developing a novel DM under a NASA SBIR program, the new ASIC driver technology started to take shape.
 • Prototyped and experimentally validated, the new ASIC technology looks forward to a newer set of technical treatments in order to expand capabilities to its full strength, and for which purpose, this phase I project is proposed. (Illustrated is a prior 6x6-channel ASIC prototype)

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Organizations Performing Work	Role	Type	Location
Microscale, Inc.	Lead Organization	Industry Small Disadvantaged Business (SDB)	Woburn, Massachusetts
● Jet Propulsion Laboratory (JPL)	Supporting Organization	NASA Center	Pasadena, California

Primary U.S. Work Locations

California	Massachusetts
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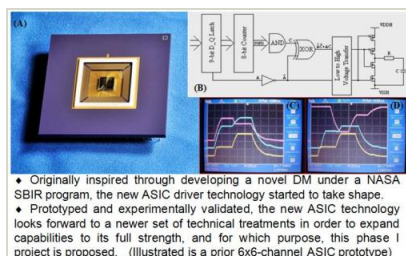
Project Transitions

**May 2013:** Project Start**November 2013:** Closed out

Closeout Documentation:

- Final Summary Chart(<https://techport.nasa.gov/file/140445>)

Images



Project Image

Driver ASICs for Advanced Deformable Mirrors

<https://techport.nasa.gov/image/126282>

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

Microscale, Inc.

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Principal Investigator:

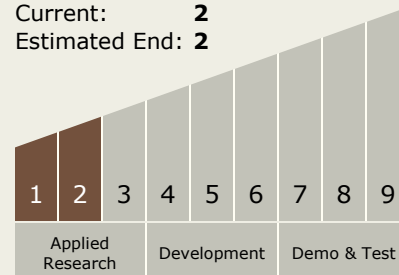
Xingtao Wu

Technology Maturity (TRL)

Start: 1

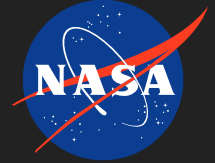
Current: 2

Estimated End: 2



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Technology Areas

Primary:

- TX02 Flight Computing and Avionics
 - └ TX02.1 Avionics Component Technologies
 - └ TX02.1.6 Radiation Hardened ASIC Technologies

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System